THE HORTICULTURIST
EDITED BY
HENRY T. WILLIAMS.
E. SEARS, SC.

VOL. 28. DECEMBER, 1873. NO. 330.

Cranberries.

CRANBERRY culture for a few years past has been fully tested, and entered into with strong enthusiasm. In some places their cultivation has been quite a success, in others a complete failure, until, by experience, they have overcome the difficulties they encountered in their first efforts. It may be of use to those who wish to raise cranberries to know the difficulties they have to encounter, as well as their success. About twelve years since six acres were taken up that had been wet and covered with bogs and brush; it was drained, cleared of roots, and made smooth (soil clear peat) without sand; the vines set in rows about two feet apart and kept clean for two or three years. They covered the ground with a rank growth of runners eight to twelve feet long, with very few fruit buds. The following season they grew in the same way and formed a mat several inches through; a lease of the ground was taken for ten years, on shares; during that time the average crop was not over 100 bushels, except one year, when there was gathered about 500 bushels; two years since it was not flowed, and nearly all the plants died except where a small part had been sanded the year previous and new plants set, which have done finely, and this year they are bearing a crop. So much for the failure.

A portion of these vines with other portions of the ground has been covered with pure sand two or three inches thick, and new vines planted out and have grown finely, with a short bearing stem. Those vines this season are full of fruit. Pure sand should be used; where there is any soil with it weeds and grass grow more freely and largely increase the labor in keeping it clean. On this plot there have been a number

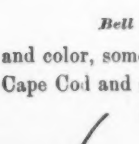
Mansfield Creeper.

of varieties planted out which are distinct in their growth and habit. One that is most marked is the Mansfield Creeper. It was found growing in Mansfield, Conn., and transplanted to a cranberry bed; the original vine the next year was destroyed. In its new position it was found to be entirely different in its growth and habit from all other varieties — it seemed to creep over the ground and catch root at every joint with great freedom, throwing out long vines from ten to fifteen feet, and bearing shoots every two or three inches on the vine, two to four inches in height. It throws out fruit buds for another year. Also another shoot, as seen in the engraving, for a fresh start. It is difficult to get rooted vines to transplant, and are planted out in vines or shoots as represented above. It excels all others in size and bearing qualities and is found to be quite early. They were picked this season (1873) fifth of September. The flesh is more tender and not as acid; fine keeper; color, dark scarlet on one side, the other nearly white with a slight mottle; shape roundish oval.

Bell Cranberry.—This and other varieties are inclined to grow more upright, as represented in cut. When cultivated in sand the vines throw out runners which take root and throw up bearing shoots, the bud starting from the end of the vine or shoot in the fall, in the spring throwing out slender bearing stems with fruit, as shown in cut. Also a bearing stem for fruit next year. The fruit is early and of good size and is a prolific bearer. They can be picked for use very early, even before they are quite matured, and continue long on the vines; even after the water is let off in the spring they will be superior to fruit picked earlier. They will bear the fruit better than any other variety, and are adapted to moist or retentive upland soil. The color is a very dark red or nearly black when fully ripe, but they often vary in shape and color, sometimes quite a light red and egg-shaped on different soils, as grown on Cape Cod and other localities; but their bearing and ripening *qualities* are the same.

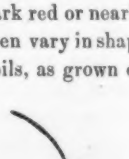
Bell Cranberry.

Mottled Bell—large size; color cherry red on white ground, beautifully mottled; good bearer; medium ripening qualities, and extra keepers.



Cherry.

Cherry Cranberry — medium to large size; round shaped; bright red color; good bearer; late in ripening and best adapted to moist soil, and not as well adapted to general culture as other varieties.



Mottled Bell.

Bugle Cranberry — one of the earliest to ripen;

medium to large size: good bearers and good keepers; color dark scarlet. Cranberries of each variety vary in size, shape and color.

Bugle Cranberry.

The most successful culture of the cranberry is on muck or peat covered with pure sand two or three inches, or more, if necessary, to level the ground, with a perfect underdrain to bring the water within ten or twelve inches of the surface. Another very important matter is to have an overflow under control, so as to let on or off in a very few hours. In case of drought or worms, it can be flowed at once, while the vines are growing in flower or fruit; twenty-four hours flow will not hurt them.

Milford, Conn. F. TROWBRIDGE.

Influence of the Stock on the Scion, and vice versa.

Essay by Josiah Hoopes, for the American Pomological Society.

BOTH theory and practice teach us that the relationship existing between the root and the top of a tree cannot be impaired to any great extent, by any artificial intervention of man. The very moment that an inserted bud or graft commences to granulate and then unite, that moment the two parts of the embryo tree struggle, as it were, for the mastery. That is, certain idiosyncrasies inherent either in the branches of the one, or the roots of the other, will form a leading feature in the mature plant. Abundant proof of this is afforded by examining the roots of nursery-grown apple trees, whether budded or grafted. Take for instance some well-known variety, as the *Bellefleur*, and the roots will be found uniformly long, slender, and very fibrous; other kinds will prove exactly the opposite. If we place a graft of some well marked variety upon any ordinary stock, say five or six feet high, in a few years certain peculiarities of the bark will be found extending down from the branches to the body of the tree; as is instanced in the *Newtown Pippin* Apple, and *Van Mons Leon le Clerc* Pear. Another curious feature respecting the influence of the scion upon the stock, is noticeable in some of the so-called "sports," or variegated leaved plants.

During the past season, a Mountain Ash, upon which was budded a variety with variegated leaves, commenced to push forth young shoots from the main body of the tree, below the point where the bud was inserted. In every case these had variegated leaves. Now, in view of the fact that these *adventitious* buds were there in advance of the original variegated bud, the presumption is, that they were created green, and their normal condition yielding to the controlling influence of the new branches, caused the change to occur by the flow of sap from above.

A still more remarkable case than the one above cited, was related some time since by a correspondent of the *London Garden*. He states that he procured scions of a diseased Horse Chestnut with yellow leaves, and worked them upon strong, healthy young trees. Some time thereafter, upon examining the stocks where the scions had failed, young shoots were found down the body, bearing the identical yellow-hued foliage; and yet, where the buds originally inserted had "taken," they produced perfectly healthy green leaves.

This disease, for I hold that all variegation is in some manner unhealthy, had evidently been communicated from the bud or scion to the stock before the death of the former, and for a short time, during its vain struggle for existence, contaminated the parts below.

The Scientific Committee, of the Royal Horticultural Society of England, also records a like case with a yellow-leaved Laburnum. After the inserted bud had died, variegated shoots were noticed issuing from the stock, both below and above the inserted point. And Dr. Masters, the English botanist, has stated that an Abutilon had thrown out variegated shoots after grafting with a variegated variety, but ceased to do so after the inserted graft died.

But, in some instances, the stock exerts a marked influence upon the scion, thus showing the co-operative system in use between them. The *Gardener's Chronicle* mentions an instance of a couple of Muscat vines worked on the Black Hamburgh, in the same house with a Muscat, on its own roots. Those worked on the Hamburgh start fully five or six days in advance of the one on its own roots, although they are nearly a fortnight behind the Hamburghs they are worked on. It is a curious fact that there has never been seen any difference in the ripening season, nor any effect on the fruit.

As we stated in the commencement, certain marked peculiarities will, sooner or later, always make themselves known; sometimes it will be one thing, and again another and totally different feature assumes the superiority. The governing cause, involved in mystery as it is, to a certain extent, affords us a clue by means of which we may study a very useful lesson in plant life.

We know that all vegetable growth arises from a cell, and what is termed young shoots, leaves, blossoms, etc., are, in fact, but an accumulation of cells, which, in time, develop woody fibre and other organs. The propagator of new varieties knows that a single bud, or a section of a young branch, may be inserted in a different tree, and these will unite and produce fruits and flowers similar to the kind from which said bud or graft was taken. Now, let us inquire into the changes that occur during this growing process, or, as horticulturists term it, "taking." Between the wood and bark is where active growth takes place, and the layer of young cells found here is known as the *Cambium layer*. All growth, of whatever nature, is by cells, the origin of which is, however, at present unknown. But this cell-growth is accomplished by small protuberances, making their appearance on the walls of the older cells, and these rapidly increase, and again, in turn, assist in the formation of others, and this is carried on so long as growth takes place. Without going into a long dissertation upon the subject of cell-growth, which would form a long essay in itself, I will merely state that the question has been asked in relation to a budded tree, can the cells, at the point of union, be partly of one variety and a part belong to another? My theory is, that a cell, singly, is entirely a component part of the variety from which it originates, either from the scion or stock, and is invested with all the powers and principles inherent in that part. A single cell cannot be of two varieties, but a collection of cells, as, for instance, the *cellular tissue*, may be formed partly of both. The *vascular* or *fibrous tissue* is governed by the same laws, each separate, but the little bundles of woody tissue uniting by their outside covering or

walls, thus forms a compact mass of wood, and the bud or graft has taken, which ultimately forms the future tree.

A bud is, in fact, an embryo tree. It contains within its protective covering all the elements of tree growth, with all the organs of vegetation and reproduction intact. Therefore, when a bud is inserted beneath the bark of another plant, the cellular growth at once takes place on both sides, these unite by their outside walls, and the so-called sap commences to circulate in the inter-cellular passages from one to the other. It is, therefore, no wonder that certain peculiarities embraced in the root may be found developing in the scion or top, and *vice versa*. That the scion is enabled to reproduce its kind, is due to the fact that its young growth is merely an increase of cells already formed, and the variations alluded to at the commencement of this paper are the result of constant currents of sap flowing between the two remote portions of the tree, and at the same time imbuing the one with certain marked characters, contained previously in the other.

Thus, in a somewhat hurried, and I fear very imperfect manner, I have alluded to the influence of the stock upon the scion, and *vice versa*.

This interesting subject is by no means all theory, as many suppose, but is the result, for the most part, of close examination by means of the powerful lens. Future investigation will, undoubtedly, reveal many novel features which we now know not of, and to accomplish this fully, the patient student of horticulture is asked to join the botanist in the pleasant task.

But there is another and more popular aspect to this subject—the relative advan tages of certain stocks for particular species of plants. Under this heading, we may take for example the plum worked on the peach. Prejudice and distrust, on the part of many cultivators, have done this operation great injustice. To the owner of a heavy soil, where the plum root thrives luxuriantly, peaches should be planted with caution; but, on the other hand, in the great peach districts, with a light mellow soil, the peach root will succeed far better than the plum. Peaches always make a large number of strong fibrous roots, and return to the top a vast amount of nutrition. The junction in certain varieties of plum on peach roots is perfect, and the tree is long-lived and healthy.

The testimony of some of our most noted pomologists go to show that the practice is correct, and a careful examination plainly indicates that the theory is faultless as well.

The subject of dwarfing fruit trees is not properly understood. The pear worked on quince roots certainly dwarfs the tree to a certain extent, and for a few years, but is the process caused by some inherent property contained in the quince? We think not. Once allow the pear to throw out a few roots above the point of junction, and the tree becomes a standard. The abundance of sap or nourishment gathered up by the roots and forwarded to the top, causes in most cases a larger and finer growth of fruit, thus showing that the quince is adapted to these kinds; but take an uncongenial variety, and mark the result. The fruit is often in such cases worthless. Years ago we were told that budding cherries on the Mahaleb stock would cause the trees to become dwarf. Little did these propagators know that when they annually pruned their trees, this was what dwarfed them, and not the root. The junction in

this case is always perfect, and it is a well-known scientific fact, that excessive pruning causes debility in a plant, and that, when vitality is checked, the tree becomes dwarfed, as a matter of course. Excessive growth and productiveness seem to be generally antagonistic. A dwarf tree, after the first vigorous growth is over, will, if healthy, produce good crops and mature a reasonable amount of new wood. Some certain varieties of pears, as, for instance, the Bartlett, never unite properly on the quince stock—the cellular tissue of each never seems to make a perfect union. Very many trees that we have examined under a strong lens reveal a marked line between the cell-growth of the two, and not, as is the case with other kinds, a lengthening of both cell-growths, one up, and the other down, so that it is very difficult to determine where the exact point of insertion really is. There are causes, over which we have no control, that debar us from dwarfing some varieties, but science has not yet solved the mystery. JOSIAH HOOPES.

The Parks of Stockholm.

THE beauty of its parks is one of the distinguishing features of Stockholm. The Djurgard, or Deer Park, is singularly picturesque, from the abundance of wood and water. The circumference is about 21 miles; the ground is very undulating, and much intersected by fjords. Added to this, the oak and beech trees have attained a magnificent growth, which is really surprising in such a northern clime, where they cannot reckon on more than two months and-a-half of summer.

During this brief period of fine weather, the people lead an out-of-door life, and seem to enjoy themselves thoroughly. The *Palace of Rosendel* is in the *Deer Park.* It is an exquisite spot; the gardens are quite open to the public, who may walk round and enjoy the wilderness of flowers that bloom here in great profusion; or they may sit at their ease and admire the beautiful proportions of the celebrated porphyry vase, which is placed in the center of the lawn. The palace, which is furnished with much taste, contains some good modern Swedish pictures. There are numerous villas and ornamental cottages dotted about in the park; but as they are not walled in, or inclosed, they heighten the beauty of the scene by means of the flower and their shrubs, which contrast so well with the rude masses of broken rocks, which here and there encumber the ground.

There is also the Haga Park, another favorite place of resort, in the immediate vicinity of Stockholm. The numerous islands in this park are prettily laid out, and many parts are very rocky and broken, while others present sylvan glades, shaded by superb trees. The park of Carlberg must not be forgotten; it also contains some magnificent trees, especially a fine avenue leading to Drottningottan. The palace in this park, which was formerly a favorite residence of Charles XII, has been transformed into a military college.

There are several royal residences round Stockholm, and among them Drottingholm should be visited, as it is one of the stateliest of the summer residences of the royalty. The gardens and surrounding are very much in the French style; more artificial than beautiful. The environs of Stockholm are almost inexhaustible in beauty; for, on one side there is the Baltic, with its myriad islands, and on the other side the lovely Malar lake, which has a length of 75 miles, stretching into the heart of the country.

The Flower Trade of New York.

Cultivation of Plants Under Glass—How the Retail Trade is Supplied.

[SECOND ARTICLE.]

THE raising of flowers and plants under glass is first in importance in the consideration of the flower trade of New York. The outdoor culture, although important when considered in its relation to the trade, is the producing element, but the hot-houses are the source from which springs the great flower business of the country. The capital invested in these hot-house nurseries is very large, and new enterprises are in progress in all of our city suburbs.

The first consideration of a nurseryman is a greenhouse; for it is in these structures under glass where all of his choicest plants are propagated and matured. These houses are, in some cases, of great size and of the most careful construction. Many of the smaller nurseries have only one house, and from this humble beginning they rise and increase until an acre or more of ground is covered with glass. The Allen nursery has a series of glass-houses one hundred and thirty-five feet square. The Siebrecht nursery at Astoria has eleven houses on its grounds, twenty by one hundred feet each, and there are other establishments of almost equal capacity around it,

The Allen Hot-houses.

At most of the more important nurseries there are houses devoted to the culture of various kinds of plants. For instance, the camellia is always given a section; and others devoted to winter flowering roses; plants of ornamental foliage, such as the ferns, clocassia, fancy-leafed caladium, the leaf of which resembles Japanese characters; the cactus and banana; and carnations.

There is an entire house on Mr. Allen's grounds devoted to the cultivation of carnation for winter flowering, and, later in the season, to the forcing of a new series of the same variety of plants for spring sales. The smilax is at present in great demand, and one house, which appears to be given up entirely to its cultivation, contains between six and seven thousand plants, or strings as they are popularly called. As each of these strings is worth half a dollar, the income from the house may be readily calculated.

Of the roses, the finer sorts only are cultivated for winter flowering, while the great mass of mixed plants are propagated from slips, for the wholesale spring trade. Heliotropes, geraniums, English violet, pansies and a score or more of familiar flowers are also cultivated in different sections and are in demand during the season. Later, all of these plants, with the exception of some raised from seed, are brought in training for early spring sales. It is not, however, the plants which have flowered during the winter which are sold, for they exhaust themselves, and slips and younger plants are brought forward for the purpose. These houses are all heated by hot water apparatus, which is a great improvement over the old-fashioned furnace.

The Siebrecht Greenhouses.

These houses at Astoria are probably as complete in their appointments as any on Long Island. There are, as stated above, eleven houses in all, which during the fall and winter season are all filled to their utmost capacity. Three houses are devoted to the cultivation of the Bonsseline and tea roses alone. They embrace between six and ten varieties, and are most desirable for baskets and bouquets. One house is

devoted to the smilax plant, and others to the camellias, carnation, ferns and miscellaneous flowers. This nursery has about two acres for bedding out the finer plants only, the flowers of which are for the retail trade. From Mr. Seibrecht we learn that the hyacinth bulbs are nearly all imported from Holland, as the plant does not thrive here, and the tubers run out in the course of four or five years. Great quantities of these bulbs are imported annually, and potting them for spring flowering forms a large business with all nurserymen.

American Exotic and Botanic Garden Company.

The American Exotic and Botanic Garden Company, of Brooklyn, was organized in March, 1872, having for its object the formation of a winter garden, or a Crystal Palace, for the exhibition of rare specimens of the "Flora of Nature." At present the company are actively at work with their improvements, and are selling their surplus flowers, which they produce, to the New York dealers. The grounds are situated near the line of Bedford avenue and in the near neighborhood of Prospect Park. The greenhouses and other improvements are all of the most substantial character, and have been built with a view to utility as well as strength.

Section No. 1 consists of a south house, 35x240 feet long, with a cellar containing boiler-room and sections devoted to the raising of mushrooms. In this department there is a well two hundred feet in depth, with an engine and pump which raises water for the entire establishment. Connected with the south house are seven center houses, each 130x35 feet, which adjoin on the north a tropical fernery 240x9 feet.

Section No. 2 contains the vinery, 240x30 feet, which is arbored inside, and completely covered with running roses; and a front house with a circular glass roof and interior balconies. This house is 240x20 feet, and is one of a series of houses which is to extend around the whole plot. The finished building is to be 660 feet front, with wings of 300 feet each. Sections Nos. 1 and 2 are heated by a powerful hot water apparatus (designed by Mr. Ogden P. Pell, the superintendent in charge), through a line of four-inch pipe which measures four miles in length. The heat was deficient during the first year, but since then improvements have been made in the apparatus, and it does its work to the satisfaction of all concerned. Two boilers are required to heat the water for these four miles of pipe, and one hundred and twenty-five tons of coal are consumed during the season.

During the present season the front or circular house is to be opened for the exhibition of camellias only. Another house is to be devoted to roses, and so on to the end of the chapter. In the center houses two lines of benches or tables have been built for the culture of tender exotics. These tables are first made as nearly water-tight as possible, after which they are coated with tar paint on the inside and then filled with sand or mould, when they are ready for the plants. In one house there are already several thousand cuttings of roses started. These are intended for the spring sales. The rose stock already in flower, or to come into flower during the early fall, amounts to about thirty thousand plants. The great majority of the rose stock consists of the ten or twelve varieties of best sorts. Of carnations there are upwards of ten thousand plants. Of the calla lily, the flower of which is so much prized during the Easter season, the stock comprises three thousand plants; and

then there are the heliotrope, geranium, bouvardia, begonia, jessamine, azaleas, ferns, fuchsias in equal quantity and variety.

To go through these extensive houses is absolutely bewildering: and while one would imagine that the establishment has the capacity to supply the whole New York market, it in reality supplies only a small part of the flowers demanded by the retail trade. During the coming season Mr. Pell estimates the sales from the gardens at about thirty thousand dollars. This estimate includes cut flowers during the winter and bedding out plants for sales next spring.

Mr. Herman Viser, the gardener in charge of the growing departments of the garden, estimates that they will cut flowers this season as follows: Of carnations, from three to four thousand a day; rosebuds, from two to three thousand daily; callas, from five hundred to one thousand; ten thousand geranium leaves; and heliotropes, camellias, azaleas, English, or as they are commonly called, wild violets, in like proportion.

Demand of the Retail Trade.

None of these great producing establishments send their perishable wares to the market, but orders are received from the retail dealers daily, and are filled as nearly as possible. During the winter season the demand for flowers by the retail florists is immense, and at holiday time and Easter the orders are so great that they cannot be filled in the neighborhood of New York.—*The Evening Post, New York.*

[TO BE CONTINUED.]

The Fern House at Hillfield.

THE Frontispiece this month illustrates the interior of a celebrated Fern House at Hillfield, near Reigate, England, of which *The Gardener's Chronicle* thus speaks:

"The Fern House, of which the central portico is seen in the engraving, is somewhat T shaped. Of course it is crammed full of plants; equally, of course, they are in excellent health. This is due to the careful manner in which the requirements are studied. The house in question is not all on a level; it is upstairs and downstairs, if we may so speak. One portion is on one level, one on another. The heating apparatus and the ventilation correspond; the consequence is there are several distinct climates in one house, and in doubtful cases the plants are shifted from clime to clime, till that one is found which best suits the requirements of the case. The center of the house is occupied by a projecting bow, on which is placed a good specimen of *Blechnum corcovadense*. Here are also fine specimens of *Gleichenia flabellata*, nestling under whose shade were blooming plants of *Griffinia hyacinthina*. In another part of the house was the curious *Tupistra*, with bunches of berry-like fruit like so many grapes."

We observe that in modern American greenhouses the preference of popularity seems to be given to Ferns, Dracæna, Marantas and Orchids — of them all, none are so easily managed, or so interesting as well as decorative as the Ferns, and even in Window Gardens the Fern Family find a congenial home, at once attractive and easily accommodated to the atmosphere of the parlor.

Were the Fruits made for Man, or did Man make the Fruits?

By Prof. Asa Gray—Essay for American Pomological Society.

THESE need not be taken as mutually exclusive propositions; for as "God helps those who help themselves," andman's work in this respect is mainly, if not wholly in directing the course or tendency of Nature, so there is a just sense in which we may say, "the art itself is Nature," by which the greatest triumphs of horticultural skill have been accomplished. Moreover, I am not one of those naturalists who would have you believe that nothing which comes by degrees, and in the course of nature, is to be attributed to Divine power.

The answer I should give to the question, as we thus put it, is:

1. Some fruits were given to man as they are, and he has only gathered and consumed them. But these are all minor fruits, and such as have only lately come within the reach of civilized man, or are not thought worth his trouble. Huckleberries and Cranberries, Persimmons and Papaws are examples, taken from this country. Whether even such fruits have or not been under a course of improvement irrespective of man, is another question.

2. Others have come to man full flavored, and nearly all that he has done has been to increase their size and abundance, or extend their season. Currants and gooseberries, raspberries and blackberries, chestnuts, and above all, strawberries, are of this class.

3. But most of the esteemed and important fruits, as well as the grains, have not so much been given to man as made by him. The gift outright was mainly plastic, raw material, time and opportunity. As to the cereal grains, it is only of the oat that we probably know the wild original; of wheat there has been an ingenious conjecture, partly but insufficiently confirmed by experiment; of the rest, no wild stock is known which is not most likely itself an escape from cultivation. Of some of them, such especially as Maize, not only can no wild original be indicated, but in all probability none exists.

So of the staple fruits; of some the wild originals can be pretty well made out; of more, they are merely conjectural; of some they are quite unknown and perhaps long ago extinct.

To cite examples in confirmation or illustration of these points, to note how very ancient some of our varieties of common fruits are, and how very recent certain others—to consider how they have originated, with or without man's conscious agency, and how they have been perfected, diversified and preserved, mainly under man's direct care—would be to expand this note into an essay, and yet to say nothing with which pomologists are not familiar.

It would be curious to speculate as to what our pomology would have been if the civilization from which it, and we ourselves, have sprung had had its birthplace along the southern shores of our great lakes, the northern of the Gulf of Mexico, and the intervening Mississippi, instead of the Levant, Mesopotamia and the Nile, and our old world had been opened to us a new world less than 400 years ago.

Seemingly, we should not have as great a variety of choice fruits as we have now, and they would mostly have been different, but probably neither scanty nor poor.

In grapes, at least, we would have been gainers. Our five or six available species, of which we are now just beginning to know the capabilities, would have given us at least as many choice sorts and as wide a diversity as we now have of pears; while pears would be a recent acquisition, somewhat as our American grapes now are. Our apples would have been developed from *Pyrus coronaria;* might have equalled anything we actually possess from *Pyrus Malus* in flavor, though perhaps not in variety, if it be true, as Karl Koch supposes, that the apples of the orchards are from three or four species. Our plums would have been the progeny of the *Chicasa*, the Beach plum, and our wild red and yellow *Prunus Americana*, which have already shown great capacity for improvement; our cherries might have been as well flavored, but probably not as large as they now are. But instead of peaches and figs, we should be discussing manifold and most luscious varieties of persimmon and papaw, the former probably equal to the *kaki* just acquired from the far east. As to strawberries, gooseberries and currants, we should have lost nothing and gained something, as we possess several species besides the European types themselves; as to blackberries and raspberries we should have been better off than now, by the earlier development and diversification of our indigenous species. And we might have had all our finest strawberries a thousand or more years ago, these having come from our American types, *Fragaria Virginiana* with its varieties (which, as well as the old world *F. Visca*, occurs all across the continent,) and *F. Chilensis* which ascends the Pacific coast to Oregon.

Then we should consider how much earlier our race, with an American birth place, would have been in possession of Tomatoes, of the Pineapple, of the Cherimoyer and the other Custard apples, of the Star-apples and other sapotaceous fruits, of Chocolate, of Lima Beans in all their varieties, of Pea nuts; not to speak of Potatoes, Sweet Potatoes, and "Jerusalem," (that is Gira-sola or Sunflower) Artichokes; the last supplemented by our Ground-nut (*Apios tuberosa*) would have been the first developed esculent tubers, and would probably have held their place in the first rank along with Potatoes and Sweet Potatoes of later acquisition.

Among the causes and circumstances which have given to the fruits of temperate climates of the old world their pre-eminence, *opportunity* is one, How many potential fruits of value lie undeveloped in this country we know not, and more, shall never know. They have lost their opportunity. Necessity, which is the mother of pomology as well as of other invention, has been fully supplied out of other accessible, and in some cases no doubt originally better materials.

There are some, however, for which evidently "a good time is coming." Of these, our wild grapes are foremost. They have such a start already, and seedlings, whether from crosses or otherwise, can be produced and selected and reproduced in so short a space of time, that they will probably have achieved their position when the American Pomological Society holds its centennial celebration.

Blackberries, from *Rubus villosus*, are in similar case; and if due attention be paid to the Low Blackberry or Dewberry, and to the Sand Blackberry of New Jersey and farther south, the foundation for a greater diversity of excellent sorts will be laid.

As to Cranberries, already an important staple, increase of size and abundance of production are all that are to be expected. It is easier to bring about improvements

in the direction of sweetness than in that of acidity. Huckleberries, also, have probably nearly reached their perfection unassisted.

A few wild fruits may be mentioned which manifestly have great capabilities, that may or may not be developed in the future. The leading instances in my mind are the Persimmon and the Papaw,—not the true Papaw, of course, which we have in Florida, but the *Asimina* or Western Papaw, so-called. Both Persimmons and Papaws are freely offering from spontaneous seedlings, incipient choicer varieties to be selected from; both fruit when only a few years old, thereby accelerating the fixation of selected varieties into races; and both give fruits of types wholly distinct from any others we possess of temperate climates. He that has not tasted a *Kaki* has no conception of the capabilities of the *Diospyrus* genus. The Custard Apples of the West Indies give some idea of what might be made of our Papaw, when ameliorated by cultivation and close selection from several generations. I have understood that one of the veteran pomologists of the country, Dr. Kirtland, of Ohio, a good while ago initiated a course of experiments upon the Papaw, in this regard; it would be well to know with what success, and whether the breeding and selection have been continued through successive generations.

Our American plums, already mentioned, have for many years been in some sort of cultivation, and have improved upon the wild forms; but I suppose they have not been systematically attended to. Their exterior liability to black-knot and other attacks renders them for the present unsuccessful.

Finally, if pomology includes nuts, there is a promising field uncultivated. Our wild Chestnuts are sweeter than those of the old world; it would be well to try whether races might not be developed with the nuts as large as *marrons* or Spanish Chestnuts, and without diminution of flavor. If we were not too easily satisfied with a mere choice among spontaneous Hickory nuts, we might have much better and thinner shelled ones. Varying as they do excessively in the thickness of the shell and in the size and flavor of the kernel, they are inviting your attention, and promising to reward your care. The Pecan is waiting to have the bitter matter between the shell and the kernel bred out; the Butternuts and Black walnuts to have their excess of oil turned into farinaceous and sugary matter, and their shells thinned and smoothed by continued good breeding; when they will much surpass the European Walnut.

All this requires time, almost unlimited time; but it is not for those who are enjoying the fruits which it has taken thousands of years to perfect, to refrain from the good work which is to increase the enjoyments of far future generations.

Ohio State Horticultural Society.

THE annual meeting of this society will be held at Mansfield, December 10th, 11th and 12th. The friends of horticulture, in that city and vicinity, are making liberal preparations for the meeting, and a cordial invitation is extended to all persons interested in the cause to attend; also to bring or send to the meeting choice specimens of fruits—especially new or rare varieties—for examination and discussion. Dr. J. A. Warder, the president of the society, has been absent during the summer and fall, as Commissioner at Vienna, but is expected to be present at the meeting.

M. B. B.

THE WESTERN HORTICULTURIST
MARK MILLER EDITOR DES MOINES, IOWA

ERRATA.—November number, page 338, 7th paragraph, for collection, read collections. Page 342, Orchards in Grass, etc., should be credited to S. B. Higgins, Baxter, Jasper Co., Iowa.

October number, page 305, for Dueberry, read *Dew.*

We wish it understood that, being so far from the printing office, we do not have the advantage of reading our own proof.

Growing Almonds.

A SAN JOSE, Cal., correspondent of the *Pacific Press* gives the following hints on the culture of the Almond:

Select from the nursery trees that have been grafted or budded on peach stocks, and those having been well irrigated and cultivated, having attained the fullest and most perfect development whilst in the nursery; on this depends success.

I am acquainted with a gentleman who purchased last winter 3,000 trees; 1,500 of which had the full benefit of the conditions I have named, the balance being worked upon almond stocks, and grown in the nursery without irrigation. This gentleman has what is known as "chapparal land" that is, land from which that shrub has been cleared; his land had been well plowed and worked, and the soil was the same in nature throughout.

When I visited the place about a month ago, I found the 1,500 which had been worked upon peach, and well irrigated while in the nursery, healthy and vigorous, having put out new shoots from eight inches to a foot in length, and with every indication of completely gratifying the hopes of their owner, while the 1,500 worked on almond, and grown without irrigation, were the most complete failure I ever saw, not a single tree being alive.

The nature of the Almond demands that it shall be planted upon high, dry, gravelly or sandy situations; putting forth its bloom as it does in February, it cannot be grown successfully on moist lands where humid atmosphere tends to increase the severity of Spring frosts.

It is obvious, therefore, taking the above facts into consideration, that a tree should have its saps and elements developed without *stint* while in the nursery, in order to give it strength to rally under the change in transplanting to which it is subjected.

Old Apple Trees.

BY WM. H. YEOMANS, COLUMBIA, CT.

ED. WESTERN HORTICULTURIST:—The question is very frequently asked, what shall be done with the old apple trees? This is more especially the case in New England and those Eastern States which have many trees on the decline. Very many of the orchards of New England are of natural fruit, the quality of many of which sinks in comparison with some of the later and more approved varieties; for this reason comes the query mentioned above. There is undoubtedly a limit to the profitable productiveness of apple trees; they may have a lingering existence with an occasional year of reasonable bearing, but beyond a certain point the vigor of a tree must be rapidly declining, and for that reason, the expediency of an attempt at renewal by means of grafting may well be questioned; for if the elements of disease and decay have once taken hold of the body or roots of a tree, although grafted from never so vigorous and thrifty a shoot, the nourishment must pass through diseased organs, and hence affect to a greater or less degree the inserted stock. Not only that, but it is a more difficult matter to obtain fruit from such old trees that is fair and possesses the desirable qualities required, than from young, vigorous trees.

At this age of fruit-growing, there is considerable diversity of opinion as to the best course to be pursued. A farmer who is a fruit grower, and markets his fruit in a distant city, remarked that if he was to set out a young orchard to apple trees, he would as soon set out natural fruit, or trees coming from the seed, as the most highly recommended fancy varieties, and gave as reasons, that the trees were always healthy and bore profusely after coming to bearing; that they almost invariably bore every year; that, if there was no sale for fruit they could be made into cider for vinegar, of which they would make more and better than fancy fruit; that in marketing, especially where furnished to families, they preferred them for cooking purposes because they were more acid, cooking softer and with better flavor. He offered as an objection to fancy fruit, the uncertainty of its bearing, many varieties being exceeding shy bearers every other year. There is certainly very much force to this objection, and this being so, renders the attempt to improve old orchards by grafting, a movement of doubtful expediency. It is manifest that there is a gradual deterioration of the apple in New England, which can undoubtedly, in a great measure be attributed to this wholesale system of grafting and intergrafting old trees. What is it, that at the present time gives the West such a superiority over the East in her apples—yes, and other fruits—if it is not the fact, that she has been obliged to originate new varieties, which she *has* done, and which are adapted to her soil and climate?

If grafting must be done, let it be upon stocks that are young and vigorous, that have been produced from the seed; and if they can be allowed to come to bearing, so as to discover the disposition of the same, before grafting, all the better, as it would be also to take the cions from trees known to be bearing trees, because, unless this is so, upon the principle that like produces like, a barren tree may finally be produced.

It is a good thing to originate and dsiseminate new varieties of fruit, but while

doing so, the profitableness to the raiser should not be entirely lost sight of; and there is no variety that is a very shy bearer, no matter how fine the fruit, that can compete with a variety of profuse bearing, but of less beauty. Orchard culture is of sufficient importance to receive careful consideration.

REMARKS.—The man who would make an orchard with seedling trees in this enlightened age, must be a "slow coach." What assurance has he of a half dozen varieties, out of a thousand trees, of any value, or when they will show fruit of any kind? On the other hand, if known sorts of grafted trees be planted, it may be predicted with certainty what the fruit will be, and the future of its coming. As for acid, in all reason, has not Duchess, Oldenburgh, Jonathan, Red June, Porter, and many other sorts enough of it to suit the palate of the most fastidious? If we had an old orchard going to decay, we would renovate it with trees from the nursery.

Pear Crop in New England.

The *Ploughman*, Oct. 11. says: This season has been remarkable for the immense production of pears. The trees are loaded in every direction. We visited an orchard the other day that yields this year over two thousands bushels, and we know of many others whose yield is nearly as great. We were glad to see the great number of new seedlings at the exhibition of the American Pomological Society. That is improvement in the right direction, and it will lead to some substantial gain. The show of pears at the exhibitions of all the County Agricultural Societies has been very fine and the interest in them is general."

On our recent visit to New England, what we saw of pear growing in Massachusetts and New Hampshire, it appeared to us that no better section for the successful culture of the pear is to be found east of the Rocky Mountains, than in the region of Boston and the southeastern portion of New Hampshire. Fifty miles to the northeast from Boston, on the sterile, rocky hillsides of New Hampshire, we were shown as fine pear and peach orchards as could be desired, and of which we shall speak hereafter. Fortunately our visit happened in the midst of the harvest, giving us an opportunity to see the fruit in its greatest perfection, and to both see and taste.

DIDN'T PUT IN AN APPEARANCE.—*Forney's Weekly Press* thus takes to task the Pennsylvanians for not putting in a better appearance at the late meeting of the American Pomological Society: "Pennsylvania, though her orchards are generally bending with the weight of fruit, failed to put in an appearance except here and there single plates from various individuals. No wonder a general impression prevails that Pennsylvania is not a State favorable to fruit growing, and settlers go beyond for fruit locations, when no effort is made to show what she can do."

It does appear a little strange, to say the least, that a State Horticultural Society of the standing of the Pennsylvania Society, should manifest so little interest in the exhibitions of our National Pomological Society. In life and enterprise the Pennsylvania State Horticultural Society stands second to no other State organization of the kind.

DWARF JUNE BERRY.—Our attention has been called to this fruit by Mr. B. A. Matthews, of Knoxville. The plants came from Michigan on an order for Blueberry plants, through a Davenport man, and the mistake, or rather imposition, was not detected until the plants bore fruit the present season. Mr. B. writes:

"The Dwarf June Berry, by the way, is no humbug, it bears prodigiously, and I am told sells in the Davenport market very readily for the same price as raspberries; the fruit looks more like the Blueberry than the fruit of our common June Berry. A person unacquainted with either the Blueberry or Dwarf June Berry might not discover the cheat. The fruit of the Dwarf variety is much the largest, and when ripe is a deep blue-black, while the fruit of the common sort is quite red. The Dwarf June Berry is nothing particularly new, although it is not very generally known, or it would perhaps be better appreciated—that is, among people who like the fruit of the Shaddock. The common sort is not a sure bearer in this country."

MICHIGAN FRUIT CROP.—A correspondent of the *Western Rural* thus writes concerning its abundance and profit: "One gentleman, who pays $96 per year as rent for a house and small tract of land, informed me to-day that his sales of peaches already amount to over $380, with about $100 worth yet on the trees. A farmer adjoining the corporation, who has an old orchard which has not always been under proper cultivation, this year reports sales to the amount of $1,000, with much fruit yet to ship; one farmer with but a few acres of indifferent trees gets $500 for his crop; another $700. Mr. L. H. Bailey has sold over 300 baskets—double the amount he anticipated, while his apple orchard, instead of yielding 1000 bushels, as I reported a few weeks since, is now sure to exceed this large amount."

VINE GRAFTED ON THE MULBERRY.—All the strange inventions do not originate on this side of the water. The *London Garden* mentions a recommendation to graft the vine on the Mulberry, as a security against the attacks of the Phylloxera, so destructive to the roots of the Grape, the Mulberry being remarkably free from the work of insects. The *Garden* recommends that the author of the remedy first ascertain whether the vine can possibly be grafted on the Mulberry, a contingency which may appear to him of little importance, but on which nevertheless the success of the plan depends. The *Country Gentleman* ventures to recommend a more certain remedy, provided it should be successful—grafting the Grape on iron posts.

A NEW CABBAGE WORM.—A correspondent of the *Ohio Farmer* speaks of a new worm that threatens destruction to the cabbage. He describes it of a pale green color, about an inch long, of rapid growth and ravenous feeders, and soon makes clean work of a field of cabbages.

WISCONSIN GRAPES.—The Editor of the *Western Farmer* acknowledges the receipt of some large grapes—some of the Delaware berries are represented as large as average sized Catawbas, Clusters of Rogers No. 4. 1 lb. 8 oz., Delaware 11 oz. Wisconsin is some on grapes surely.

Our Fruit Prospects in Minnesota.

BY PETER M. GIDEON, EXCELSIOR, MIN.

ED. WESTERN HORTICULTURIST:—Winter is here earlier than usual by fifteen days, having set in October 22, though it is possible this snow may leave before more comes, and let us have some good weather yet. But early as is the Fameuse, fruit trees were better ripened than usual at the set-in of winter, and so of all trees; never saw the leaves dropped so clean. But notwithstanding the well ripened condition of trees, the most of varieties were more or less injured last winter and not entirely recovered in color of wood, so that should the coming winter be as hard as the past one, the partially tender trees would fare bad, as it would take less now to kill them than it did a year ago to damage them.

Up to last winter there were many kinds that bid fair to do well, but are on the rejected list to-day, I fear condemned too soon, as another such a winter may not occur in the next hundred years; certain it is, its equal heretofore was unknown; yet it may be repeated and that immediately, and even frequently in the future, as effect never comes without a cause, and that cause may yet exist and continue a space of time. We know not the end, so that in planting, the most hardy should be selected as the main reliance; the partially tender set more sparingly, but not rejected entirely.

Though the past winter was a hard one, yet the blight of the last of May and first of September did us more damage than the winter, and took hardest on those that the winter least affected. The blight took earlier and later than ever before, and scarce any at the usual time of previous attacks of the epidemic, for such I esteem it to be, as much so as the cholera, of which it is only a forerunner, now on its third trip around the world.

I have no fears that the blight will tarry long with us, nor do I fear for the ultimate success of fruit growing here, though the last winter may repeat itself as early and as often as it may; for we have some varieties so positively hardy that the last winter left them as sound as if no frost had touched them. Especially was this the case with our new stock of seedlings, grown from the seed of the Duchess, Wealthy, and a large crab of our growing, the most hardy and perfect in tree of any apple or crab I have yet seen, its seedlings excepted. Our famous crab tree is surrounded by large good varieties, mostly Blue Pearmains, of which cross many of the seedlings partake in tree and foliage, and no doubt will in fruit, but none yet fruited; but seedlings from the Duchess, Wealthy, and a few from the Cherry crab that have fruited correspond in fruit to the general appearance of tree-crabs and apples having come from the seeds of each. Of those seedlings we have some 500 set in orchard and some 1,500 yet to set, three-fourths of which prove perfectly hardy, so that our chance for something good as well as hardy is hopeful, to say the least. For with only about thirty yet in bearing from our own growing of seed, the Transcendent and Hislop are left far in the rear in size, brilliancy and flavor, some of them rating as good apples, the crab brilliancy, in a superlative degree, added. The winter and the blight caused us great loss, but in time will come up again better than before; will in a few years be able to exhibit a thousand varieties of our own origin, aside

from hundreds of varieties now on trial, the best from all parts the Union. Our motto is onward; our practice at each reverse, to double the effort for the next trial; and as time develops our best seedlings, or others that are worthy, will mass the best and strike out on their seedlings, to grow yet still better, and so on, till our race is run.

FRUIT NOT A FAILURE IN WISCONSIN.—The *Western Farmer* says: "The natural fear that the Horticultural Exhibition at the Wisconsin State Fair would be a meagre one was proven unfounded. In extent and quality the show compared very well with that made in any former year. As a rule, the apples were not equal in size and general appearance to those shown in other years, but there were many exceptions. The show of grapes were very fine. Flowers, ornamental plants, etc., were shown in large numbers. The arrangement was good and the general effect produced very satisfactory."

The show of fruit at the meeting of the American Pomological Society at Boston is in confirmation of the above, that there had been no such failure of the fruit crop in Wisconsin, this season, as reports naturally led to suppose. We are told that the collection at the Boston meeting was gathered principally from two counties only. The fact is, nine-tenths of the talk about the fruit crop west of the Mississippi being nearly a total failure is mere bosh. Apples at this time (Nov. 5) in the Des Moines market, from Iowa orchards, are from $1.25 to $1.50 per bushel only. Do these prices indicate anything like a total failure of the crop?

PEACH CULTURE IN DELAWARE.—We believe it is generally conceded that Delaware is the best peach-growing region in the Union. Her soil and climate appear peculiarly adapted to the production of the peach in its greatest perfection. A committee from New Jersey visited Delaware last season to investigate peach-growing in that State. Among other matters in their report, the following points are put down as essential to successful peach culture: 1. To prepare thoroughly, clear and enrich the soil for planting. 2. To give plenty of room, or plant twenty-five or thirty feet apart. 3. Not to shorten in the branches. 4. To do a great deal of work among the trees—plowing, harrowing, cultivating, allowing no grass or weeds. 5. To hunt the borers once a year in autumn. 6. No raising corn or potatoes except the first three years in the orchard, and then only provided fertilizers are applied. 7. After the third year to plant nothing, but cultivate thoroughly.

BLIGHT AND OPEN EXPOSURE.—J. S. Stickney, president Wisconsin Horticultural Society, in his last annual address, said: "Observation for the past three years has driven me, much against my will, to believe that both pears and apples are much safer from blight where fully exposed to the winds than when sheltered by trees or buildings, and for pear trees would suggest that they be planted on the highest good soil at command, and exposed to all the winds that blow." If any protection is necessary, he says it should be to protect the trunks of the trees on the side exposed to the sun, which scalds the bark, and the thawing in winter causes the trees to crack open. This can be prevented by shading with a board or hemlock bark.

Editorial Notes.

The Horticulturist for 1874.

Since the adoption of illustrated frontispieces, monthly, we are pleased to observe the eager interest and appreciation of our readers. Probably there has never been a single volume, in the entire history of THE HORTICULTURIST, which contains such an excellent (we may even say elegant) series of frontispiece engravings. Printed on the heaviest tinted plate paper, they are a valuable decoration to every number; and the entire volume for the year, is, we confidently believe, one of the most ornamental we have ever issued. During the past year, orders for back volumes and complete sets have come from all quarters, beyond our ability to supply; and as Mr. Wilder himself remarked, in a recent visit to our office, "THE HORTICULTURIST *is warmly appreciated, everywhere; I am glad to see you have made it so popular, and infused into it so much enthusiasm, energy and ability.*"

During the coming year, our plans include many illustrated frontispieces of still handsomer character than any which have yet graced our pages; likewise, we are engaging the services of contributors to special departments, so that our pages may have greater vivacity and practical interest. We have so many tastes to consult and gratify, that we cannot devote exclusive space to *fruits* alone; but we love gardening, cottages, flowers, plants, and home adornment full as well, and we will never permit the "*joys of the garden*" to be overlooked.

We will adopt, in our January number, 1874, a manifest improvement in typographic appearance, viz.: *two columns to the page.* At present so much space is wasted and made vacant, by displayed titles, running full width across the page, that we have decided to use this space more advantageously, and fill up with more reading matter. By dividing the page into two columns, we still have room for leaded matter and open ornamentation, yet we can admit fully one-fifth *more reading.*

THE HORTICULTURIST, in its first five volumes, was published in this way, and now, after a lapse of twenty-eight years, it is convenient to return once more to the old custom.

Our readers are invited to contribute to its pages from their note-books of experience, and (to gladden the publisher) renew subscriptions early. Do not drop your HORTICULTURIST first, on the list of papers, in these economical times. It fills a special field, and what it does is a work of love, and sympathy, and public good.

Mark Miller still remains with us, as Western Editor, for the coming year.

Artificial Manure for Florist's Plants.

Dr. Jeannel in an experiment respecting the use of artificial manures, the results of which were contributed to the Journal of the Central Horticultural Society of France, took two plants of Pelargonium and two of Agaves, of as nearly as possible the same degree of luxuriance. One plant of each was placed in ordinary soil, the other

in sand. Water was supplied to each, and in addition a dose of mineral manure was afforded to the plants in the sand, care being taken by means of saucers, to prevent the loss of soluble salts. After six months the Pelargonium, in the *manured sand* was four times as vigorous, as that in the soil. Similar results occurred with the Agaves. When the two plants were grown in ordinary soil, with or without manure the effects were similar. The manure used contained the following ingredients per 1,000 parts:

Nitrate of Ammonia	400
Nitrate of Potash	250
Biphosphate of Ammonia	200
Hydrochlorate of Ammonia	50
Sulphate of Lime	60
Sulphate of Iron	40
	1000

Four grammes (about a drachm) of the pulverized and mixed salts were dissolved in a gallon of water, and administered to the plants weekly. In using solutions of mineral manure for various plants, it must be remembered that the requirements of each species are somewhat different.

Plants for Drawing-room Vases.

At one of the South Kensington Horticultural shows, prizes were offered for best display of plants in vases; and the following is the arrangement of the best:

1st Prize—A small trumpet shaped vase, having three other curved trumpets rising from the same vase; this was nicely decorated with blue coniflowers (Centaurea cyanus), climbing Fern (Lygodium japonicum), and grasses.

2d Prize—A dish, out of which rose a trumpet vase, with two blooms of crimson Cactus, and two of White Water Lily, a few Fern fronds, and some grasses, prettily arranged.

Button Hole Bouquets.

1st Prize—Pretty boquet, consisting of a yellow Rose-bud, mounted with small sprays of *Forget-Me-Not*, having amongst it on one side, one pip of Kalosanthes coccinea, and on the other side one pip of a pure white flower, resembling Bouvardia or Jasmine.

2d Prize—A small spray of red *Cowbretum purpureum*, backed with a piece of Maiden-hair Fern.

Mignonette in France.

One Nurseryman in the Rue Montgalet, Paris, sells every year about 40,000 pots of Mignonette. This gives some idea of its popularity among the French.

A Pretty Subtropical Bed.

At the Royal Garden, Kew, England, there was planted directly in front of the Museum a bed of subtropical plants, which attracted very general notice. The shape was that of a parallelogram, edged with Golden Feather, plated with Nicotiana, Maize, Cannas, Ferdinandas, Ricinas, etc.; among them were interspersed Amaranthus Salicifolius, Abutilon Thompsonii, and flowering Gladiolus. It was a blaze of color and had a grand effect.

Early History of the Tomato in America.

This is said to have been introduced into America by a Mr. Bolton, of Philadelphia. He is said to have introduced it 90 years ago, having brought the seed from South America, and distributed them among his friends in Philadelphia, who cultivated them for the singularity and beauty of their appearance, but rejected them as an esculent, regarding them as poisonous when grown in this climate.

An Ohio lady tells an amusing story of their appearance years ago upon the table at a fashionable watering place in Pennsylvania, in the form of pies, producing the

greatest consternation. No one was found so daring as to risk his or her life upon the experiment of eating them.

Cutting Down Roses in the Fall.

Mr. N. Ohmer stated at a meeting of the Montgomery (O.) Horticultural Society that in cutting down his roses in the fall he cut them to within ten or twelve inches of the ground and then covered them entirely with decayed manure, and over this placed a low covering of boards. In the Spring he removes most of the manure, and never gives them water winter or summer. The best time for transplanting roses is in the Spring.

Mrs. Pierce said that she mulched flowers late in the season with well rotted leaf mould or old hot-bed soil. Tea roses, she finds, can be kept in our gravelly subsoil with good mulching. The best way to mulch was to make a little hollow in the soil around the plant before applying it.

A Good Flower for Garden Borders.

Dr. McCarthy, in an essay read before the same society, recommends the old fashioned double May pink as the best border to beds in which bulbs are planted. Its firm roots keep the margin well defined; its dwarf habit and bright evergreen foliage make it beautiful throughout the year, while its rich profusion of lovely flowers and its unrivaled fragrance, coming as they do, just as the perfume of the hyacinth, and the radiant glory of the tulip are departing, make it in the *highest* degree desirable.

The Eupatorium as a Garden Flower.

Mary Tower, in a short floral paper before the same society says: All professional gardeners, and I may say amateurs too, are charmed by the introduction of a white flower which combines the qualities of being a profuse bloomer, hardy and effective in masses. With this fact in view, it seems strange that we so seldom see the *eupatorium ageratoides* cultivated in our gardens. It is common in all our shady woods, blooming during the latter part of August and far into September. The only objection that can be brought forward is its rank growth, therefore requiring considerable room. I know of no more effective white flower for bouquets and floral ornaments.

Germination of Primula Japonica.

English florists find that the Primula Japonica retains its germinating power down to the third season. Seeds which were received direct from Japan by E. G. Henderson & Son, and germinated but small numbers the first year, produced thousands freely the second year, and the same pans still produced the third year from the original sowing.

An Insect Palace.

Sir John Hill has given the following curious account of what appeared on his examining a carnation: "The principal flower in an elegant bouquet was a carnation; the fragrance of this led me to enjoy it frequently and near. The sense of smelling was not the only one affected on these occasions; while that was satiated with the powerful sweet, the ear was constantly assailed by an extremely soft, but agreeable murmuring sound. It was easy to know that some animal within the covert must be the musician, and that little noise must come from some little creature suited to produce it. I instantly distended the lower part of the flower, and placing it in a full light, could discover troops of little insects frisking, with wild jollity, among the narrow pedestals that supported its leaves, and the little threads that occupied its center. What a fragrant world for their habitation? What a perfect security from all annoyance, in the dusky husk that surrounded the scene of action! Adapting a microscope to take in, at one view, the whole base of the flower, I gave myself an opportunity of contemplating what they were about, and this for many days together, without giving them the least disturbance. Thus I

could discover their economy, their passions and their enjoyments. The microscope, on this occasion, had given what nature seemed to have denied to the objects of contemplation. The base of the flower extended itself under its influence to a vast plain; the slender stems of its leaves became trunks of so many stately cedars; the threads in the middle seemed columns of massy stuctures, supporting at the top their several ornaments; and the narrow spaces between were enlarged in walks, parterres and terraces. On the polished bottom of these, brighter than Parian marble, walked in pairs, alone, or in large companies, the winged inhabitants; these, from little dusky flies, for such only the naked eye would have shown them, were raised to glorious, glittering animals, stained with living purple, and with a glossy gold, that would make all the labors of the loom contemptible in the comparison. I could, at leisure, as they walked together, admire their elegant limbs, their velvet shoulders, and their silken wings—their backs vying with the empyrean in its blue; and their eyes, each formed of a thousand others, out-glittering the little plains on a brilliant, above description, and too great almost for admiration.

Profits in Raising Crab Apples.

The Transcendent Hyslop and other improved Crab apples, have been raised with great success by R. C. Fields of Osseo, Wis. As many as 1,000 bushels have been raised in a single year, and he has never sold them for less than $2.00 per bushel. Among the new Russia varieties being planted in the vicinity, the Tetofsky has the preference.

Prolific Peaches.

Upon the farm of Dr. Henry Ridgely, Dover, Del., is a peach tree, from which was gathered in one day this year, no less than twenty-two baskets of peaches. Another tree bore twenty-one and a half baskets. The first was of the late old Mixon variety, and was sold at Dover depot for $1 per basket, or $43.50 clear for produce of the two trees.

A Curious Peach.

Mrs. H. W. Draper, of Dover, Del., discovered on one of the peach trees of her place, a peach of fine large size, but curious growth. One-half had the appearance of the old Mixon variety, while the other half resembled the late Crawford. The color line was very distinct on the skin. On opening the peach the varieties separated as marked, the stone being split and a portion adhering to each half. The flesh, however, did not exhibit so strongly the distinctive characteristics of the two varieties, the old Mixon color and flavor predominating. Hybrids are of frequent occurrence in the peach orchard, but fine specimens like this are somewhat rare.

Pruning Fruit Trees.

The Kansas State Horticultural Society has been discussing pruning, and it is asserted that the best success was from low-headed trees little pruned; in fact this is said to be proved by the very lowest orchards. Mr. Grubb, of Brown county, who has a large orchard, seventeen years old, is decidedly in favor of very low-headed trees, and he prunes none except with thumb and finger; and the best lesson he said he ever got on pruning was from the late Reuben Ragan of Indiana, who said when he found that pruning was coming into his mind, the very first thing he should do was to throw his knife into the well.

Our Pears.

L. Van Houtte, of Ghent, Belgium, announces a new pomological volume, entitled "*Nos Poires.*" It is edited in two languages, French and English, and gives colored plates of fifty varieties, with engravings of about forty more; probably selecting the very best of all that are grown.

Packing Apples in Plaster.

A farmer in the eastern part of Connecticut, last fall, packed some apples in plaster, filling up all the interstices with this material. Opening the barrels, on the

14th of June, he found the fruit in a wonderful state of preservation. There was not an eighth as many decayed ones as in barrels put up in the ordinary way, while the fruit was almost as fresh as when gathered.

A Fine Gingko Tree.

In the Botanical Garden, at Pisa, Italy, is a Gingko tree, *Salisburia adiantifolia*, which has attained the height of nearly ninety feet, and at three feet from the ground is nine feet seven inches in circumference. It was received from England, and planted in 1788. It is a splendid tree, and very remarkable for the rich golden color which the leaves assume before falling.

Hardy Herbaceous Annuals.

The Agriculturist remarks that those of this class, with variegated foliage, are rare. None that we have seen equals the variegated Comfrey, *Symphytum peregrinum*. It is bright and pleasing from early spring until late autumn, and never shows any signs of deterioration.

New Double Poinsettia.

A new variety has been introduced in New York, and is now in the possession of Isaac Buchanan, of this city. The flower cluster is stated to be often 14 to 18 inches in diameter, and about six inches high. In the opinion of *The Agriculturist* "it will certainly take high rank for conservatory decoration, especially as it holds its color so long, and for florists and bouquet makers, the clusters of small and brilliant bracts will be invaluable." It was discovered by Louis Roezl, who found it in a small Indian village, in the State of Guerrero, in Mexico, in May, 1873.

Success of American Vegetables and Fruits Abroad.

The Early Rose Potatoe has won a triumph even in Australia. In one place a single pound of seed produced 105 pounds in yield; another lot of two pounds of seed produced 300 weight within seven months.

Phylloxera.

In the south of France, the native varieties of Southern Grape, such as Warren, Lenoir, Jaques, Scuppernong, are entirely free from the attacks of the Grape Phylloxera. The destructive force of this disease is such, that fears are entertained that the European Wine Grapes are destined to be entirely obliterated from along the coast of the Mediterranean. An association has been formed for the introduction in the South of France, of several millions of our native Southern Grapes.

Picquet Peach.

At the fruit exhibition of the Georgia State Horticultural Society, the Picquet Peach was classed as best, flesh vinous, highly flavored, melting, stone small, and fruit of a regular and very large size, and of superior quality. The Smock and Salway were both classed below it; and the Smock particularly, was so much the lowest standard of admission in point of quality, that it was denied admission.

Preserving Cut Flowers.

A correspondent of the *Gardner's Chronicle* relates how successful he was in keeping fresh flowers for a long time. "About six weeks ago, and when flowers were not so plentiful as they are now, my wife had some choice greenhouse flowers, which she was anxious to preserve, and she adopted the following plan, which proved to be a great success: She arranged them in a vase with a little water, and placed them under a glass shade; after an absence from home of eight days, she was delighted to find them as fresh and as beautiful as when she left them. By this method the beauty of the flower is preserved for a very long time, opportunities are

afforded for a display of taste in their arrangement, and the result is always gratifying. I have now on my table two vases under glass shades which are really elegant ornaments, and which, beautiful as many of the wax flowers are, puts them quite in the shade. One vase contains crimson and white Azaleas, dark blue Cineraria, and Maiden-hair Fern; the other contains three roses, viz., Gloire de Dijon, Priveer's Mary of Cambridge, and Triomphe d' Alencon, with Maiden-hair Fern, and they are the admiration of everyone. The Maiden-hair Fern is as fresh, at the end of a fortnight, thus preserved, as when it was first put in.

NOTE.—The idea is a good one, and perhaps the duration of blooming might be still further prolonged by putting the stem of the flowers in *white sand, wet*, instead of water only.

Interest in American Horticulture.

The *Gardener's Chronicle* of London, has often published notices of Mr. Wilder's address, and in its issue of August 30, devotes 1¼ column to notices of the coming 25th anniversary of American Pomological Society, with published list of essayists.

Plant for Rockwork.

An interesting plant for rockwork is recommended by the *Gardener's Chronicle*, to be "*Scabiosa Parnassae.*" It grows in "hummocks" and has heavy foliage and pale flowers, succeeded by a feathery pappus-like calyx, which gives the plant a very distinct aspect.

A Fine Coral Tree.

In a Nursery at Dorking, England, there flowered this summer, a fine specimen of the *Erythrina Cristagalli.* It is supposed to be over 50 years old, and its stump was 18 inches in diameter. The plant bore 30 spikes of bloom.

Hathaway Excelsior Tomato.

We believe this originated in America, but know not its precise source. Nevertheless it has found its way to England, and a gardener writes to the *Gardener's Chronicle*, that "it is the most acceptable Love apple in cultivation; it is of moderate growth, flowers early, and extremely handsome, probably the handsomest of all the tomatoes, being plump and quite round, devoid of all sutures."

American Azaleas.

The *Gardener's Chroaicle* says "Azalea growing" has reached as high perfection of growing in America as with us." This is given by way of compliment, in special reference to the magnificent display of Azaleas in bloom at Mr. Sargent's, in Brookline, Mass. The queen of the collection is the variety called *Azalea indica decora*, a dome shaped plant, of about five feet high, 16 feet in circumference, and bearing more than 3,000 of its superb blossoms. The plant is nearly 30 years old. The entire collection contains about 200 plants, and some idea of its excellence can be gained when it is stated that $1,000 has been offered for it.

The Honeysuckle as a Standard.

A writer in the *Villa Gardener* thinks that the Honeysuckle is one of the most regularly flowered climbers in cultivation, taking rank for effect, and surpassing in many points—odor, for instance—even the gorgeous colored clematises, which are in every modern garden. As a standard, the honeysuckle merits the very foremost place in our villa gardens. "We have seen it with thousands of flower umbels in pale yellow and pale pink, decorating villa grounds in a way that no single plant in the month of July can do." It is scarcely possible, in words, to portray its extreme beauty and effectiveness. Buy a plant of it (cost not 50 cents), train or tie it to a stout stake, as one would do a standard rose; prune it not too severely, but in the way a hybrid china rose ought to be done; give it a good soil to grow in, and it needs no further attention. It will grow into a plant that will astonish, by its flowering capacity, thousands and tens of thousands who have not seen it so trained.